

WHAT IS CLAIMED IS:

1. An oxide superconductor current lead in which metallic electrodes are provided at both sides of an oxide superconductor, joining metal is provided at joint portions formed by said oxide superconductor and said metallic electrodes, and said oxide superconductor and said metallic electrodes are joined by the joining metal,

wherein a volume of holes in the joining metal provided at the joint portions is 5% or less of a volumetric capacity of the joint portions.

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2. The oxide superconductor current lead according to claim 1, wherein silver coat is provided on a surface of said oxide superconductor joined by the joining metal.

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3. The oxide superconductor current lead according to claim 1 or claim 2, wherein the joining metal is solder including one or more kind or kinds of cadmium, zinc, and antimony, and one or more kind or kinds of lead, tin, and indium.

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4. A method of manufacturing an oxide superconductor current lead in which metallic electrodes are provided at both sides of an oxide superconductor, joining metal is provided at joint portions formed by said oxide superconductor and said metallic electrodes, and said oxide superconductor and said metallic electrodes are joined by the joining metal,

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comprising:

degassing the joining metal by decompressing the joint portions after heating the joint portions to a temperature of a melting point of the joining metal or higher, when joining said oxide superconductor and said metallic electrodes by the joining metal.

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5. The method of manufacturing the oxide superconductor current lead according to claim 4,

wherein on heating and degassing the joining metal, sealing members, which restrain the joining metal from flowing out of the joint portions, are provided.

5 6. A superconducting system, wherein the oxide superconductor current lead according to any one of claims 1 to 3 is used.

7. An oxide superconductor current lead which is provided with metallic electrodes at both ends of an oxide superconductor, and transfers a
10 current from and to mating conductors joined to said metallic electrodes,
wherein in at least one of said metallic electrodes,
said oxide superconductor is placed in said metallic electrode to be substantially in parallel with an interface between said metallic electrode and the mating conductor.

15 8. The oxide superconductor current lead according to claim 7,
wherein said oxide superconductor has a columnar shape, and is placed so that a longitudinal direction thereof is substantially in parallel with the interface.

20 9. The oxide superconductor current lead according to claim 7 or claim 8,
wherein said oxide superconductor is an oxide superconductor produced by a melting method.

25 10. The oxide superconductor current lead according to any one of claim 7 to claim 9,
wherein said oxide superconductor is an oxide superconductor made by joining a plurality of oxide superconductors.

30 11. The oxide superconductor current lead according to any one of claim 7 to claim 10,

wherein said metallic electrodes and said one or more superconductor or superconductors are joined by joining metal, and

wherein a volume of holes in the joining metal constitutes 5% of a volumetric capacity of joint portions or less.

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12. A superconducting system, wherein the oxide superconductor current lead according to any one of claim 7 to claim 11 is used.